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| APPLICATION NO.   | FILING DATE   | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.  | CONFIRMATION NO. |          |              |      |  |           |               |            |       |
|---|---------------|----------------------|--|------------------|----------|--------------|------|--|-----------|---------------|------------|-------|
| 09/843,703  | 04/30/2001    | Kenro Hama           | 018775-826   | 9401             |          |              |      |  |           |               |            |       |
| <div>7590 12/10/2007<br/>Platon N. Mandros<br/>BURNS, DOANE, SWECKER &amp; MATHIS, L.L.P.<br/>P.O. Box 1404<br/>Alexandria, VA 22313-1404</div> |               |                      | <div>EXAMINER<br/>MENBERU, BENIYAM</div> <table border="1"><thead><tr><th>ART UNIT</th><th>PAPER NUMBER</th></tr></thead><tbody><tr><td>2625</td><td></td></tr></tbody></table> <div><table border="1"><thead><tr><th>MAIL DATE</th><th>DELIVERY MODE</th></tr></thead><tbody><tr><td>12/10/2007</td><td>PAPER</td></tr></tbody></table></div> |                  | ART UNIT | PAPER NUMBER | 2625 |  | MAIL DATE | DELIVERY MODE | 12/10/2007 | PAPER |
| ART UNIT  | PAPER NUMBER  |                      |  |                  |          |              |      |  |           |               |            |       |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                               |                             |  |
|------------------------------|-------------------------------|-----------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>09/843,703 | Applicant(s)<br>HAMA ET AL. |  |
|                              | Examiner<br>Beniyam Menberu   | Art Unit<br>2625            |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 August 2007.  
 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3, 5, 6, 8, 9, 11, 12, 14, 15, 17, 18 and 20-25 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1-3, 5, 6, 8, 9, 11, 12, 14, 15, 17, 18 and 20-25 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \*    c) ☐ None of:  
         1. ☒ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/12/2007</u> . | 6) <input type="checkbox"/> Other: _____  |

***Response to Arguments***

1. Applicant's arguments with respect to claims 1, 5, 8, 11, 14, and 17 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 11, 12, 14, 15, 17, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5689590 to Shirasawa et al.

Regarding claim 11, Shirasawa et al '590 discloses an image processor comprising:

a first decision controller which decides whether each input color component gradation value of a target pixel exists in first ranges (column 16, lines 33-46; column 17, lines 27-30; The first ranges is defined by pixel components (r, g, b) having density levels (gradation) less than th1.; The object pixel is target pixel.);

a second decision controller which performs a linear calculation between each color component gradation value of the target pixel and decides whether results of the

calculation exist in second ranges different from the first ranges (column 17, lines 56-67; column 18, lines 28-36; The difference (linear operation) density level (gradation) between the maximum (r, g, b) and minimum (r, g, b) components is compared to different threshold th2 (second ranges). When the maximum difference value is less than th2 (second ranges) then all the other possible difference value between other components will also be less than threshold th2. So when the maximum minus the minimum component is less than th2 than all the other difference values of the other components will also be less than th2. ); and

a color decision controller which decides that the target pixel has a specified color when the first decision controller decides that each color component gradation value of the target pixel exists in the first ranges and the second decision controller decides that the results exist in the second ranges (column 17, lines 63-67; column 18, lines 1-14; When both thresholds th1, th2 are satisfied for the color components the output color value rp, gp, bp are set to 0's (column 9, lines 54-57)).

Regarding claim 12, Shirasawa et al '590 teaches all the limitations of claim 11, Further Shirasawa et al '590 discloses the image processor according to claim 11, wherein said second decision controller calculates differences between the color component gradation value of the target pixel and decides whether the differences exist in the second ranges (column 17, lines 56-67; column 18, lines 28-36; The difference (linear operation) density level (gradation) between the maximum (r, g, b) and minimum (r, g, b) components is compared to different threshold th2 (second ranges). When the

maximum difference value is less than  $th_2$  (second ranges) then all the other possible difference value between other components will also be less than threshold  $th_2$ . So when the maximum minus the minimum component is less than  $th_2$  than all the other difference values of the other components will also be less than  $th_2$ .)

Regarding claim 14, see Rejection of claim 11 as shown above.

Regarding claim 15, see Rejection of claim 12 as shown above.

Regarding claim 17, see Rejection of claim 11 as shown above.

Regarding claim 18, see Rejection of claim 12 as shown above.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3, 5, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5689590 to Shirasawa et al in view of U.S. Patent No. 6167167 to Matsugu et al.

Regarding claim 1, Shirasawa et al '590 discloses an image processor comprising:

a first decision controller which decides whether each input color component gradation value of a target pixel exists in first ranges (column 16, lines 33-46; column 17, lines 27-30; The first ranges is defined by pixel components (r, g, b) having density levels (gradation) less than  $th1$ .; );

a second decision controller which decides whether differences between each color component gradation value of the target pixel exist in second ranges different from the first ranges (column 17, lines 56-67; column 18, lines 28-36; The difference density level (gradation) between the maximum (r, g, b) and minimum (r, g, b) components is compared to different threshold  $th2$  (second ranges). When the maximum difference value is less than  $th2$  (second ranges) then all the other possible difference value between other components will also be less than threshold  $th2$ . So when the maximum minus the minimum component is less than  $th2$  than all the other difference values of the other components will also be less than  $th2$ . ); and

a color decision controller which decides that the target pixel has a specified color when the first decision controller decides that each color component gradation value of the target pixel exist exists in the first ranges and the second decision controller decides that the differences exist in the second ranges (column 17, lines 63-67; column 18, lines 1-14; When both thresholds  $th1$ ,  $th2$  are satisfied for the color components the output color value  $rp$ ,  $gp$ ,  $bp$  are set to 0's (column 9, lines 54-57)). However Shirasawa et al

'590 does not disclose wherein the second decision controller determines differences between each color component gradation value of the target pixel and those of pixels adjacent thereto.

Matsugu et al '167 discloses wherein the second decision controller determines differences between each color component gradation value of the target pixel and those of pixels adjacent thereto (column 14, lines 29-67).

Having the system of Shirasawa et al '590 and then given the well-established teaching of Matsugu et al '167, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the system of Shirasawa et al '590 as taught by Matsugu et al '167, since Matsugu et al '167 stated in col. 2, Lines 37-49, such a modification would provide a reliable method for extracting image data.

Regarding claim 3, Shirasawa et al '590 in view of Matsugu et al '167 teach all the limitations of claim 1. Further Matsugu et al '167 discloses the image processor according to claim 1, further comprising an edge detector which calculates differences in the color gradation value between the target pixel and a plurality of adjacent pixels thereof in a direction and decides a position of an edge based on the differences (column 11, lines 41-59; column 12, lines 26-50; The target is defined by the subject image pixel and the background pixel represent the adjacent pixels.).

Regarding claim 5, see Rejection of claim 1 as shown above.

Regarding claim 8, see Rejection of claim 1 as shown above.

5. Claims 2, 6, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5689590 to Shirasawa et al in view of U.S. Patent No. 6167167 to Matsugu et al further in view of U.S. Patent No. 6631210 to Mutoh et al.

Regarding claim 2, Shirasawa et al '590 in view of Matsugu et al '167 teaches all the limitations of claim 1. However Shirasawa et al '590 in view of Matsugu et al '167 does not disclose an image processor, method, and program according to claim 1, wherein said second decision controller determines a maximum value among differences of color gradation value between the target pixel and the adjacent pixels thereof and decides whether the maximum value exists in the second ranges.

Mutoh et al disclose an image processor, method, and program, wherein said second decision controller determines a maximum value among differences of color gradation value between the target pixel and the adjacent pixels thereof and decides whether the maximum value exists in the second ranges (column 26, lines 29-42; column 32, lines 24-32).

Having the system of Shirasawa et al '590 in view of Matsugu et al '167 and then given the well-established teaching of Mutoh et al '210, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the system of Shirasawa et al '590 in view of Matsugu et al '167 as taught by Mutoh et al '210 since Mutoh et al '210 stated in col. 32, Lines 38-46, such a modification would provide detection of deep color area using the maximum value.



Regarding claim 6, see Rejection of claim 2 as shown above.

Regarding claim 9, see Rejection of claim 2 as shown above.

6. Claims 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5689590 to Shirasawa et al in view of U.S. Patent No. 6167167 to Matsugu et al further in view of U.S. Patent No. 6115494 to Sonoda et al.

Regarding claim 20, Shirasawa et al '590 in view of Matsugu et al '167 teaches all the limitations of claim 1. However Shirasawa et al '590 in view of Matsugu et al '167 does not disclose the image processor according to claim 1, further comprising:

an extraction controller which extracts an element having a predetermined shape based on the decision by said color decision controller; and

a pattern detector which detects a specified pattern in the image value discriminating whether the elements extracted by said extraction controller have a predetermined relationship between them.

Sonoda et al '494 discloses:

an extraction controller which extracts an element having a predetermined shape based on the decision by said color decision controller (column 7, lines 59-67; column 8, lines 37-65; column 11, lines 10-24; The element reads on "marks 2" shown in Figure 1. The marks 2 have triangular shape. ); and

a pattern detector which detects a specified pattern in the image value discriminating whether the elements extracted by said extraction controller have a predetermined relationship between them (Figure 5 shows the device wherein the

pattern detector 17 detects pattern (column 14, lines 30-34) based on the extracted pixels from output 13c (column 10, lines 43-67; column 11, lines 1-9). The extracted pixels from output 13c are based on the detection of the colors of marks by reference 13a and 13b which make up the pattern of Figure 1. Thus the pattern is detected based on the extracted pixels from the binary processing unit 13 shown in Figure 5(column 13, lines 1-11, lines 23-30; column 14, lines 20-43). In column 11, lines 30-34, the pattern recognition is related to recognizing the marks using mark shape extraction unit 13a since the marks form the pattern (column 8, lines 36-40) that is to be detected. 13a is used for accuracy purpose in conjunction with 13b which detects the color of marks).

Having the system of Shirasawa et al '590 in view of Matsugu et al '167 and then given the well-established teaching of Sonoda et al '494, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the system of Shirasawa et al '590 in view of Matsugu et al '167 as taught by Sonoda et al '494, since Sonoda et al '494 stated in col. 8, Lines 45-47, 60-62, such a modification would provide an accurate pattern detection system.

Regarding claim 21, see Rejection of claim 20 as shown above.

Regarding claim 22, see Rejection of claim 20 as shown above.

7. Claims 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5689590 to Shirasawa et al in view of U.S. Patent No. 6115494 to Sonoda et al.

Regarding claim 23, Shirasawa et al '590 teaches all the limitations of claim 11. However Shirasawa et al '590 does not disclose the image processor according to claim 11, further comprising:

an extraction controller which extracts an element having a predetermined shape based on the decision by said color decision controller; and

a pattern detector which detects a specified pattern in the image value discriminating whether the elements extracted by said extraction controller have a predetermined relationship between them.

Sonoda et al discloses:

an extraction controller which extracts an element having a predetermined shape based on the decision by said color decision controller (column 7, lines 59-67; column 8, lines 37-65; column 11, lines 10-24; The element reads on "marks 2" shown in Figure 1. The marks 2 have triangular shape.); and

a pattern detector which detects a specified pattern in the image value discriminating whether the elements extracted by said extraction controller have a predetermined relationship between them (Figure 5 shows the device wherein the pattern detector 17 detects pattern (column 14, lines 30-34) based on the extracted pixels from output 13c (column 10, lines 43-67; column 11, lines 1-9). The extracted pixels from output 13c are based on the detection of the colors of marks by reference

13a and 13b which make up the pattern of Figure 1. Thus the pattern is detected based on the extracted pixels from the binary processing unit 13 shown in Figure 5(column 13, lines 1-11, lines 23-30; column 14, lines 20-43). In column 11, lines 30-34, the pattern recognition is related to recognizing the marks using mark shape extraction unit 13a since the marks form the pattern (column 8, lines 36-40) that is to be detected. 13a is used for accuracy purpose in conjunction with 13b which detects the color of marks).

Having the system of Shirasawa et al '590 and then given the well-established teaching of Sonoda et al '494, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the system of Shirasawa et al '590 as taught by Sonoda et al '494, since Sonoda et al '494 stated in col. 8, Lines 45-47, 60-62, such a modification would provide an accurate pattern detection system.

Regarding claim 24, see Rejection of claim 23 as shown above.

Regarding claim 25, see Rejection of claim 23 as shown above.

### ***Other Prior Art Cited***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 4958217 to Kimura et al disclose image processor.

U.S. Patent No. 6914628 to Kuwata et al disclose edge color pixel processing.

U.S. Patent No. 5142272 to Kondo discloses display image processing.

U.S. Patent No. 5740333 to Yoh et al disclose pixel processor.

U.S. Patent No. 5768412 to Mitsuyama discloses image segmentation.

U.S. Patent No. 6795586 to Gindele et al disclose image noise removal processing.

U.S. Patent No. 6504951 to Luo et al disclose detection of pixels related to sky in images.

U.S. Patent No. 5696611 to Nishimura et al disclose color processing.

U.S. Patent No. 6243070 to Hill et al disclose artifact processing of image data.

U.S. Patent No. 4830501 to Terashita discloses color density processing.

U.S. Patent No. 6873436 to Terada et al disclose color image processing.

U.S. Patent Application Publication No. US 2004/0165773 A1 to Katsuyama discloses color pixel processing.

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Beniyam Menberu whose telephone number is (571) 272-7465. The examiner can normally be reached on 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Aung Moe can be reached on (571) 272-7314. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service office whose telephone number is (571) 272-2600. The group receptionist number for TC 2600 is (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

Application/Control Number:  
09/843,703  
Art Unit: 2625

Page 14

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Electronic Business Center (EBC) at 866-217-9197 (toll-free).

***Patent Examiner***

Beniyam Menberu

BM

12/04/2007

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